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Full-Scale Shaking Table Tests on a Two-Story Wooden Residential House.

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On 8th and 10th January in 2008, a series of full-scale shaking table tests was done on a two-story modern wooden residential house at E-defense, which is well-known as the largest 3D shaking table test facility in the world.

A research team, constituted from RISH, Shinshu University, National Research Institute for Earth Science and Disaster Prevent and a private company which was the sponsor of this full-scale experiment, has been engaging in this big project for almost one year since last summer.

Before this full-scale shaking table test, a series of static push-pull cyclic lateral loading tests was conducted on every shear resistant elements, which were expected to give any contributions to the earthquake resisting performance of whole house. Static tests were done by using the common use facilities at Wood Composite Hall in RISH. Not only formal shear walls but also such special elements as hanging wall, bottom wall or even for external sheathing material were evaluated as shown in Figure 2. Figure 3 indicates a comparison between the experimental data observed by acceleration measuring devise on the shaking table at E-defense and predicted behavior of specimen by summing up the performance of all resisting elements involving in the test specimen. It is obvious from this comparison that the modern wooden residential house, which was designed so as to meet with required design criterion, is much stronger and tougher than that of simple prediction.

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Fig.1. A two-story modern wooden residential house just after the first shaking table test over. Researchers are inspecting damages with a lot of interests (E-defense, Miki, Hyogo prefecture).

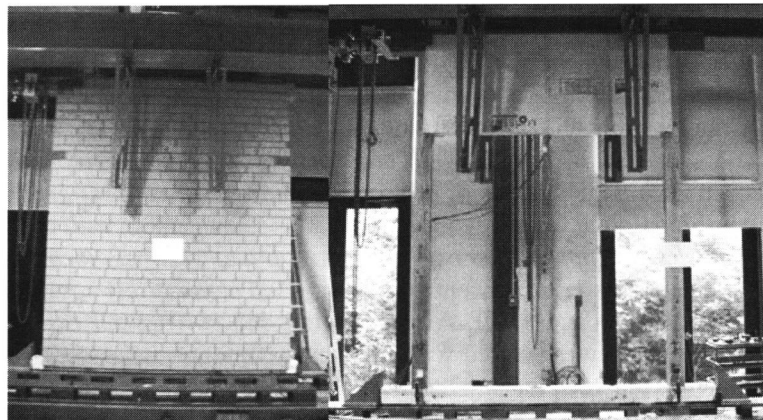


Fig.2. Static push-pull cyclic lateral loading tests on all resisting elements for evaluating their shear resistant performance (Wood Composite Hall, RISH, Uji, Kyoto prefecture)

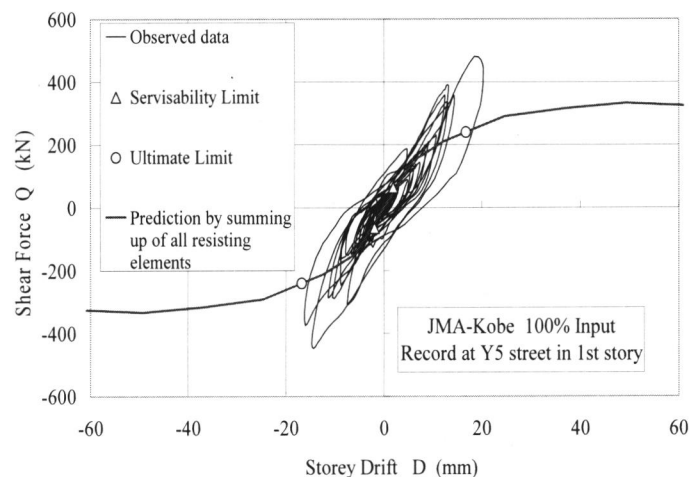


Fig.3 Comparison between observation and prediction.